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EG&G ROCKY FLATS

INTEROFFICE CORRESPONDENCE

DATE August 5, 1991

TO Donald R. Ferrier, Waste Programs, 750

FROM Celeste M. Marsh, Technology Development, 881

SUBJECT Solar Pond B-Series Compatibility Evaluation

As requested, I am providing a summary of the compatibility evaluation tests and observations on 207B-North, Central and South ponds. The sampling took place July 15-17, 1991, and was conducted in accordance with my procedure. A total of 30 samples was collected, 15 each of sludge and water from each of the three ponds (reference my letter to J.Guadagnoli dated 6/24/91 for details and locations). The remaining sample material will be returned to the appropriate pond(s) during the next Weston sampling phase.

Testing and observation commenced 7/31/91 in the Bldg. 788 enclosure. All samples were thoroughly mixed before aliquot weighing and/or measurement.

A. Initial pH measurements, waters only

Sample I.D.	pH	Sample I.D.	pH
207B-North-1	7-8*	207B-North-2	7-8*
207B-North-3	7-8*	207B-North-4	7-8*
207B-North-5	7-8*	207B-Central-1	9 ± 0.5
207B-Central-2	9 ± 0.5	207B-Central-3	9 ± 0.5
207B-Central-4	9 ± 0.5	207B-Central-5	9 ± 0.5
207B-South-1	9 ± 0.5	207B-South-2	9 ± 0.5
207B-South-3	9 ± 0.5	207B-South-4	9 ± 0.5
207B-South-5	9 ± 0.5		

* - pH determined with pH paper; all others were measured with a portable pH meter; two(2) each- 207B-North samples were later spot-checked with pH meter and measured 7.5± 0.5;

B. Sludge composite made of the following:

1. 40 grams each of 5 locations from 207B-North (1-5), mixed well; dark brown color

2. 40 grams each of 5 locations from 207B-Central (1-5), mixed well; brown to light brown color

3. took 75 grams from each composite 1 and 2, above, and mixed in glass reaction vessel (bubbler) and observed;

- no offgassing observed
- no temperature change measured (ambient sludge = 25.0 ± 1.0° C)
- no miscibility problems

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C. Sludge composite (1:1:1) made of the following:

1. 40 grams each of 5 locations from 207B-North (1-5), mixed well;

2. 40 grams each of 5 locations from 207B-Central (1-5), mixed well;

3. 40 grams each of 5 locations from 207B-South (1-5), mixed well;

4. Took 100 grams from each composite 1-3, above, and mixed thoroughly in reaction vessel;

- no offgassing observed
- no temperature change measured (ambient sludge = 25.0 ± 1.0° C)
- no miscibility problems

D. Water composite (1:1:1) made of the following:

1. 40 mls each of 5 locations from 207B-North (1-5), mixed well;

2. 40 mls each of 5 locations from 207B-Central (1-5), mixed well;

3. 40 mls each of 5 locations from 207B-South (1-5), mixed well;

4. Took 100 mls from each composite 1-3, above, and mixed thoroughly in reaction vessel;

- no offgassing observed
- no temperature change measured (ambient water = 25.0 ± 1.0° C)
- no miscibility problems
- resultant pH = 8.9 ± 0.1
- no turbidity or precipitation observed

E. Water composite (1:1:2) made of the following:

1. 100 mls each of 5 locations from 207B-North (1-5), mixed well to final volume = 500 mls;

2. 50 mls each of 5 locations from 207B-Central (1-5), mixed well to final volume = 250 mls;

3. 50 mls each of 5 locations from 207B-South (1-5), mixed well to final volume = 250 mls;

4. Took composites from 1-3, above, and mixed well in double zip-loc bags;

- no offgassing observed
- no temperature change measured (ambient water = 25.0 ± 1.0° C)
- no miscibility problems
- resultant pH = 8.8 ± 0.1
- no turbidity or precipitation observed

F. Water composite (1:2:1) made of the following:

1. 100 mls each of 5 locations from 207B-Central (1-5), mixed well to final volume = 500 mls;

2. 50 mls each of 5 locations from 207B-North (1-5), mixed well to final volume = 250 mls;

3. 50 mls each of 5 locations from 207B-South (1-5), mixed well to final volume = 250 mls;

4. Took composites from 1-3, above, and mixed well in double zip-loc bags;

- no offgassing observed
- no temperature change measured (ambient water = 25.0 ± 1.0° C)
- no miscibility problems
- resultant pH = 8.9 ± 0.1
- no turbidity or precipitation observed

G. Water composite (2:1:1) made of the following:

1. 100 mls each of 5 locations from 207B-South (1-5), mixed well to final volume = 500 mls;

2. 50 mls each of 5 locations from 207B-North (1-5), mixed well to final volume = 250 mls;

3. 50 mls each of 5 locations from 207B-Central (1-5), mixed well to final volume = 250 mls;

4. Took composites from 1-3, above, and mixed well in double zip-loc bags;

- no offgassing observed
- no temperature change measured (ambient water = 25.0 ± 1.0° C)
- no miscibility problems
- resultant pH = 8.8 ± 0.1
- no turbidity or precipitation observed

H. Sludge composite (1:1:1) made of the following:

1. 40 grams from location #5 only for each of 3 ponds;

- no offgassing observed
- no temperature change measured (ambient sludge = 25.0 ± 1.0° C)
- no miscibility problems

2. Took sludge composite from 1., above, and combined with 207B-North,Central, and South composite (1:1:1) and mixed well;

- no offgassing observed
- no temperature change measured (ambient sludge = 25.0 ± 1.0° C)
- no miscibility problems

I. Sludge and water composite made of the following:

1. Combined all water and sludge composites prepared in items B. through H., above and mixed well;

- no offgassing observed
- no temperature change measured (ambient H_2O/sludge = 25.0 ± 1.0° C)
- no miscibility problems
- resultant pH = 8.8 ± 0.1

No additional testing was conducted based upon the results and observations from items A. through I., and considering the difficult conditions under which the testing was performed (full-face respirator, full Anti-C personnel protective equipment, 2-person rule, and 85-90°F temperatures). I feel confident that no chemical or physical incompatibility exists in homogenization of the 207 B-series ponds for the HET Solar Pond Remediation project.

cc: Leon Collins, T130C
Ernie Lombardi, T130C
Mic Prochazka, T130D
Steve Jorgensen, Dames & Moore, T130C

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INTEROFFICE CORRESPONDENCE

DATE June 18, 1991

TO John Guadagnoli, WR&S, 750

FROM Celeste Marsh, TD, 881

SUBJECT Request for Solar Pond Sampling

As discussed with you on 6/14/91, I am requesting sampling of the solar ponds for compatibility studies in support of the HET solar pond remediation effort. After discussing the proposal with K. Grossaint, former manager of the 371 Labs, he recommended that the samples be screened in that laboratory. Upon receipt of the radioactivity screening data, the samples will be sent to me in Bldg. 881 provided the results are under the 881 building limit. I will perform the compatibility studies inside portable glove bags in Technology Development laboratory space. Excess sample will be returned to the original solar pond location. A diagram of the sampling plan is attached. The sampling plan is as follows:

1. Pond 207B north

   a) 5 samples, each 500 milliters - 1 sample each of water collected from each of 4 corners and 1 sample of water collected from the middle of the pond;

* b) 5 samples, each 5 milliters - 1 sample each of water collected from each of 4 corners and 1 sample of water collected from the middle of the pond;

2. Pond 207B central

   a) 5 samples, each 500 milliters - 1 sample each of water collected from each of 4 corners and 1 sample of water collected from the middle of the pond;

* b) 5 samples, each 5 milliters - 1 sample each of water collected from each of 4 corners and 1 sample of water collected from the middle of the pond;

3. Pond 207B south

   a) 5 samples, each 500 milliters - 1 sample each of water collected from each of 4 corners and 1 sample of water collected from the middle of the pond;

* b) 5 samples, each 5 milliters - 1 sample each of water collected from each of 4 corners and 1 sample of water collected from the middle of the pond;

4. Pond 207B north

   a) 5 samples, each 500 milliters - 1 sample each of sludge collected from each of 4 corners and 1 sample each of sludge collected from the middle of the pond;

* b) 5 samples, each approx. 5 grams - 1 sample each of sludge collected from each of 4 corners and 1 sample of sludge collected from the middle of the pond;

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5. Pond 207B central

   a) 5 samples, each 500 milliters - 1 sample each of sludge collected from each of 4 corners and 1 sample of sludge collected from the middle of the pond;

* b) 5 samples, each approx. 5 grams - 1 sample each of sludge collected from each of 4 corners and 1 sample of sludge collected from the middle of the pond;

6. Pond 207B south

   a) 5 samples, each 500 milliters - 1 sample each of sludge collected from each of 4 corners and 1 sample of sludge collected from the middle of the pond;

* b) 5 samples, each approx. 5 grams - 1 sample each of sludge collected from each of 4 corners and 1 sample of sludge collected from the middle of the pond;

Items to be addressed include:

1. Minimize introduction of air into the sample containers as much as possible.

2. Attempt to take vertical (i.e. core) samples whenever possible in order to obtain characteristic representation of each sample location. It is important to obtain the samples from top to bottom and not on the sloping edges of the pond sides. My sampling plan will be similar to the HET plan in terms of locations chosen.

3. No preservatives are to be added to the sample containers.

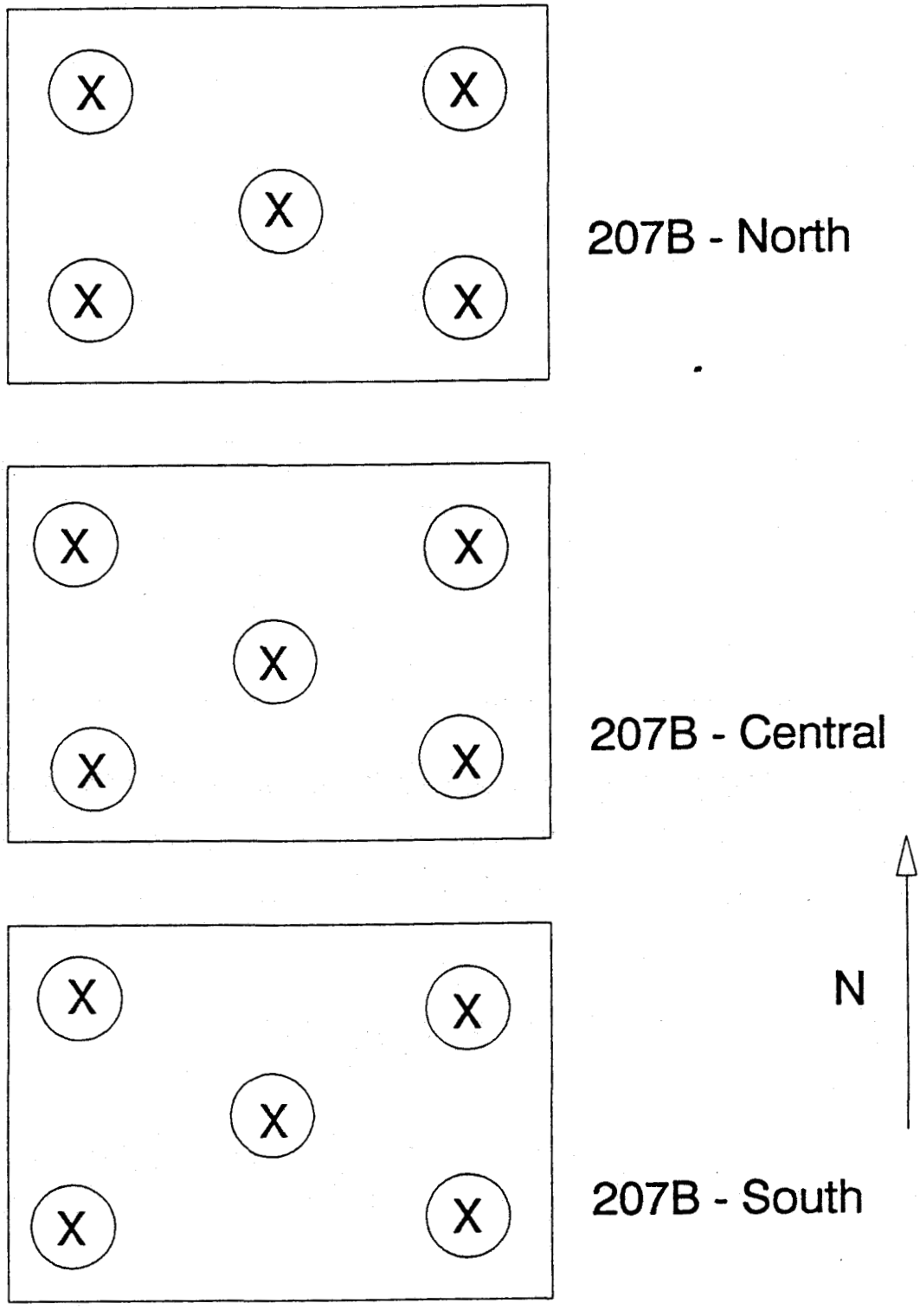
4. The smaller size samples (indicated by an '*') may be obtained by taking an appropriate portion from the larger samples. These samples will be double-bagged, hand-carried, and delivered to Terrell Ott, foreman, Bldg. 371 Laboratory.

5. I will provide the sample containers with appropriate identification, and need to be present during the sampling process.

If the screening data prohibits the samples from entering Bldg. 881, I will need to have them processed in the 371 laboratory. Mr. Grossaint expressed a concern that the labs were unequipped to handle the disposal of remaining sample material which is considerably more than that facility normally handles. I will tackle that problem separately if it becomes necessary. Please advise me as soon as possible regarding your organization's ability to support this activity. Thank you.

cc: L.A. Collins, TD, T130C
D.R. Ferrier, WP, 111

SOLAR PONDS SAMPLING LOCATIONS



1. When taking water samples, do not penetrate the sludge layer.

2. When taking sludge samples, minimize the water, if possible.

3. When taking samples, avoid sampling on angled sides of pond.